

FOUR NEW FLEAS OF THE GENUS  
DACTYLOPSYLLA JORDAN, 1929

(Siphonaptera)

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Among fleas sent in by field units of the Western Communicable Disease Center Laboratory, two new species and one new subspecies of *Dactylopsylla* Jordan 1929 were noted and are herein described. A third species being described is from collections obtained by the junior author while gathering material for a master's thesis on Utah fleas.

*Dactylopsylla bluei psilos* Prince and Stark, new subspecies

This subspecies (figs. 1-5) is closely related to *D. bluei bluei* (C. Fox, 1909), but as the name indicates it is armed with fewer bristles.

*Head*: Clypeal tubercle absent as in *D. b. bluei*. Antenna reaches beyond posterior border of head in male but does not in female. Scape in both sexes without setae. Pedicel of male without setae; pedicel of female with 8 setae reaching beyond end of clava. Clava of male definitely segmented but segmentation of clava of female not pronounced. Double row of small setae above antenna of male; single row in female. Two rows of medium and large setae on gena and one row on posterior border of head. Mouth parts short, labial palps extend only two-thirds length of fore coxa.

*Thorax*: Pronotal ctenidium with 19 or 20 teeth. Meso- and metathorax not heavily covered with setae. Posterior dorsal row of setae on mesonotum (both sexes) consists of from 5 to 7 setae on each side, while other species of *Dactylopsylla* have 8 to 12 setae. Posterior dorsal row of setae on metanotum consists of from 7 to 9 setae on each side while all other species except *D. b. bluei* and *D. digitenua* have more. This row on *D. b. bluei* specimens numbers from 8 to 10 setae. The number of long, stout, dorsal bristles on the hind tibia ranges from 17 to 22. The medial displacement of the first pair of plantar bristles of segment V of tarsae is not pronounced.

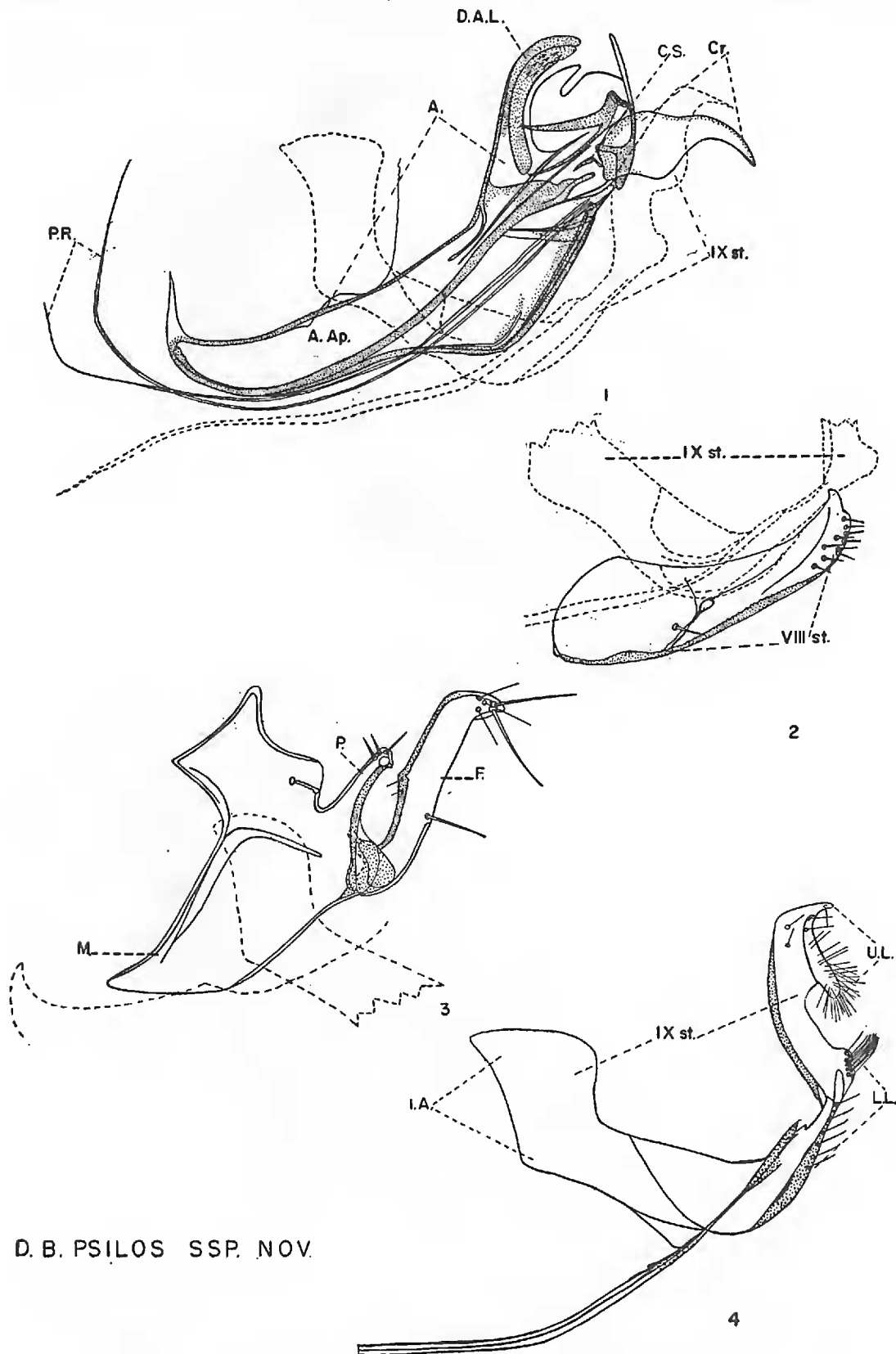
*Abdomen*: Over-all chaetotaxy on abdomen is similar to other species of *Dactylopsylla* except for being sparse. The average number of setae in each posterior row on abdominal tergites is 12 on

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each side; in other species 14; though in *D. b. bluei* up to 16 on each side. Antepygidial bristles: one with one small seta in male; three in female.

*Modified segments.* Male: The VIII tergum is large, covering most of the external genitalia. The VIII sternum is reduced and

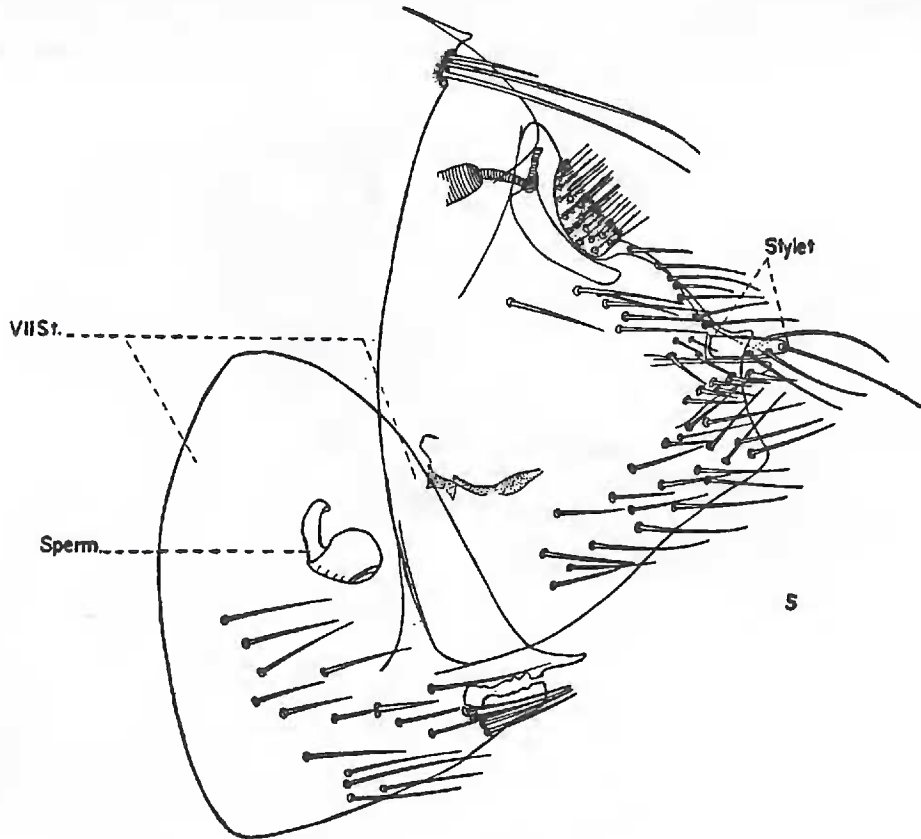


D. B. PSILOS SSP. NOV.

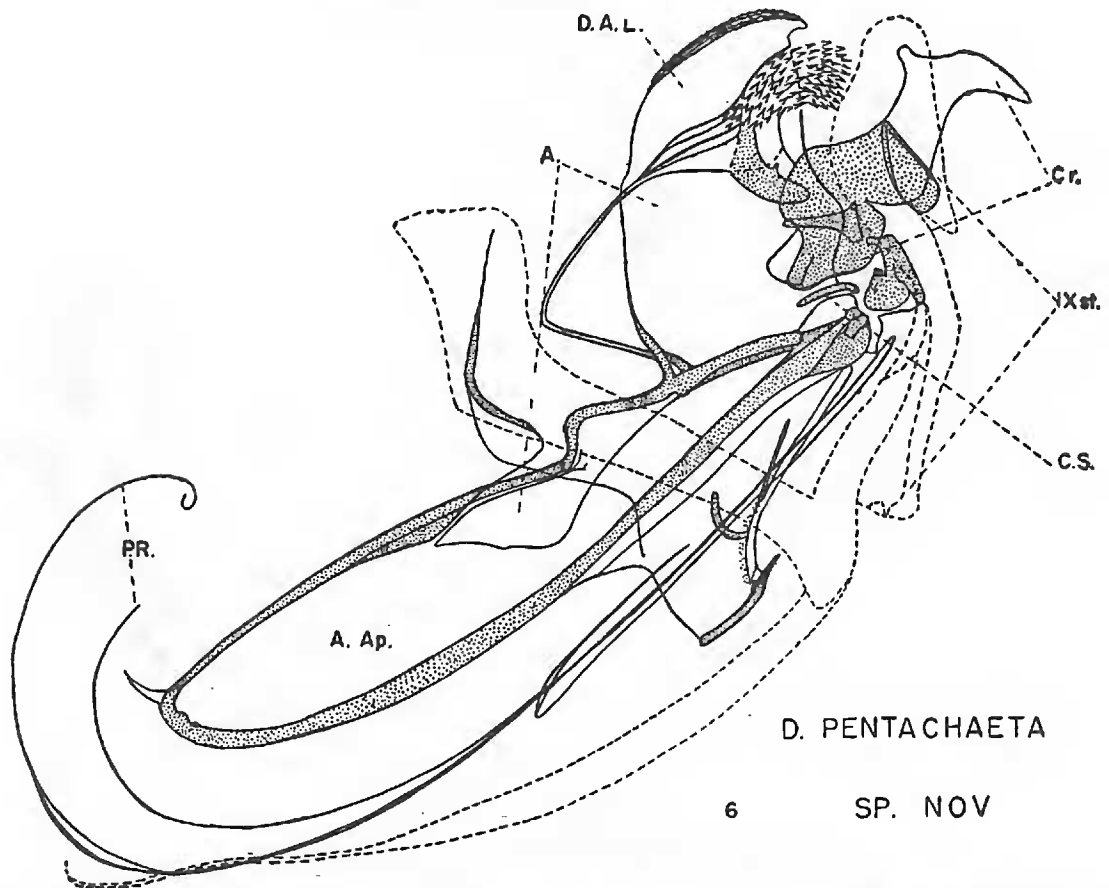
(All figures are in lateral view, left side)

Figs. 1-4, *Dactylopsylla bluei psilos*. 1, aedeagus; 2, VIII sternum; 3, manubrium, clasper, finger; 4, IX sternum.

unmodified, having no posterior process and no diagnostic setae except 10 or so extremely small setae. The IX tergum reduced as a whole, manubrium being shorter than in *D. b. bluei*. Clasper is



D.B. PSILOS SSP. NOV.



D. PENTACHAETA

6 SP. NOV

Fig. 5, *Dactylopsylla b. psilos*, posterior segments of female. Fig. 6, *D. pentachaeta*, aedeagus.

small, with a prominent, narrow, dorsal process. Finger long and narrow as in *D. b. bluei* but the distal end is not turned as far posteriorly. The internal arms of the IX sternum are large as in *D. b. bluei*. The median lobe bears many small, fine setae. The upper lobe is relatively larger than in *D. b. bluei* and is heavily covered with thin setae. The dorsal process of the upper lobe is broader and the ventral process is smaller than in *D. b. bluei*. The aedeagus is similar in shape to *D. b. bluei*, but the distal ends of the crochets are small and directed posteriorly.

Female: The posterior border of the VII sternum shows a small, prominent, sharply pointed lower lobe which marks the junction of the ventral border and the posterior border. The only available female (allotype) has a broken section in the lobe giving the appearance of two lobes as shown in the drawing. This female has a collapsed spermatheca. The tail is well differentiated from the head and bears a very prominent appendage. The head is probably an oval subglobular shape. The stylet terminates in a medium-sized bristle (seta) and has two ventral setae.

Measurements (lengths): Holotype male, 2.8 mm. Allotype female, 3.9 mm. Paratype males, 3.3 mm.; 3.3 mm.; 3.2 mm.; 3.1 mm.; 2.9 mm.; 2.8 mm.; 2.8 mm. Average, 3.1 mm. for males.

Type host: *Thomomys perpallidus* subsp.

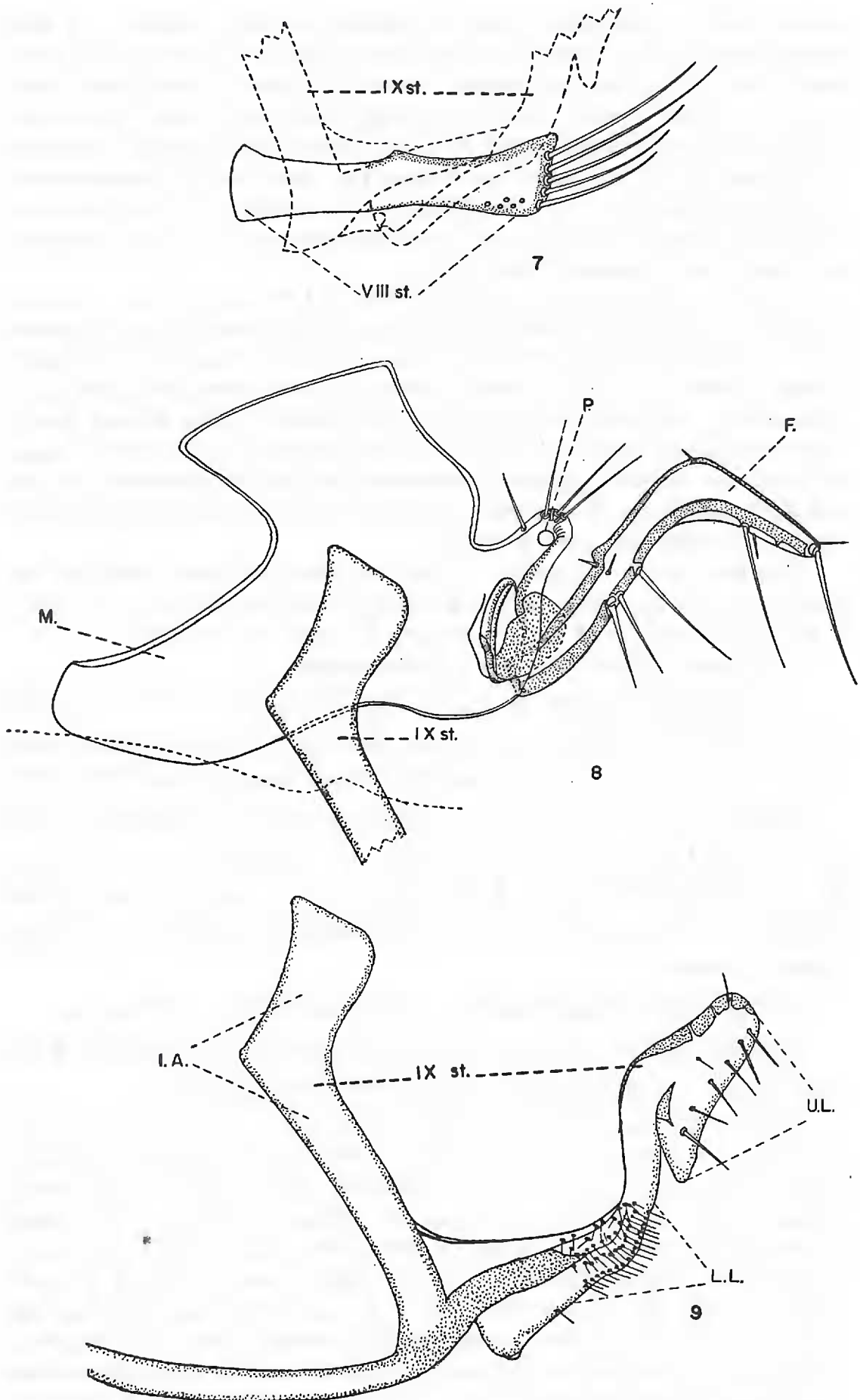
Type locality: 20 mi. W. LAS VEGAS, STATE GAME REFUGE, 2300 ft., CLARK CO., NEVADA. Ecological association: greasewood, cacti. Collected by Mr. Huey Owen and Mr. Orris Smith, March 26, 1949.

*Holotype* male and allotype female on deposit at Western Communicable Disease Center Laboratory. Paratype males: one at U. S. National Museum, Washington, D. C., and one at British Museum (Natural History), in Siphonaptera collection at Tring, Herts, England.

#### *Dactyopsylla pentachaeta* Prince and Stark, new species

This species (figs. 6-10) is closely related to *D. percernis* Eads and Menzies, 1949 and *D. neomexicana* Prince, 1945.

*Head*: Clypeal tubercle absent. A notch is present but barely discernible in both sexes. Antennae extend to posterior border of head in the male but not in the female. Scape with 5 very small setae. Three extremely tiny setae on pedicel of male; 7 or 8 setae on pedicel of female reaching to end of the clava. The clava has 9 distinct segments. These characters differ from those of *D. percernis* in that the pedicel of the male *D. percernis* has 6 distinct but thin setae reaching half the length of the clava, and the female of both *D. percernis* and *D. neomexicana* has 7 or 8 setae on the pedicel reaching beyond the clava. The male of *D. neomexicana* has 7 or 8 extremely tiny setae similar to *D. pentachaeta*. Vertex of cranium (male only) and borders of gena heavily chitinized. Two distinct rows of large-sized bristles on gena (5 or 6 bristles in each row)



*D. PENTACHAETA* SP. NOV.

Figs. 7-9, *Dactylopsylla pentachaeta*. 7, VIII sternum; 8, manubrium, clasper and finger; 9, IX sternum.

and one row on posterior border of head. Small setae above antennae begin as two rows anteriorly and grade into four irregular rows posteriorly. Mouth parts short; labial palps extend only two-thirds length of fore coxa.

*Thorax*: Pronotal ctenidium with 21 teeth in both sexes. Meso- and metathorax as in other members of genus. Hind tibia has 22 long, stout, dorsal bristles. First pair of plantar bristles of segment V of tarsae are turned downward and inward.

*Abdomen*: Over-all chaetotaxy as in other members of genus. Antepygidial bristles 3 in male, 4 in female.

*Modified segments*. Male: The VIII tergum is large and covers most of the external genitalia. The VIII sternum is very distinct. It has virtually no posterior process but terminates broadly with 5 large, distinct setae. The VIII sternum of *D. neomexicana* bears 3 or 4 large, distinct setae and has a small posterior process which is slightly more pronounced than in *D. pentachaeta*. *D. percernis* has 4 smaller bristles, and the outline of the VIII sternum is quite unlike that of *D. pentachaeta*. The IX tergum is distinct and well inside the body cavity. The clasper is small, with narrow prominent dorsal process. The finger is large. The distal one-third of the finger is extended posteriorly from a 90° angle. The anterior border of the finger has a small but prominent protrusion in the middle. This process is not present in either *D. neomexicana* or *D. percernis*. There are 3 medium-sized bristles along the posterior border, 2 placed close together. This is similar to *D. neomexicana*, but *D. percernis* has only 2 medium-sized bristles along the posterior border. The internal arms of the IX sternum are prominent. Externally the median lobe bears many small setae on the posterior and lateral parts. The upper lobe is quite prominent, bearing many thin setae.

Female: Posterior border VII sternum with distinct sinus. This sinus is not prominent in either *D. percernis* or *D. neomexicana*. Spermatheca without demarcation between head and tail. Process at tip of tail. Head not as heavily pigmented as *D. percernis* or *D. neomexicana*. Stylet terminates with medium-sized bristle and has two ventral bristles, one small lateral bristle and two exceedingly tiny dorsal bristles. *D. percernis* and *D. neomexicana* have the two ventral bristles but no small lateral bristle.

Measurements (lengths): Holotype male, 3.2 mm. Allotype female, 3.6 mm. Paratype females, 3.6 mm. and 3.2 mm.

Type host: *Mustela* sp.

Type locality: LOUICH RANCH, 20 mi N., 5 mi. E. BENKELMAN, 3,200 ft., DUNDY Co., NEBRASKA. Ecological association: rolling sand hills, grass, *Cynomys* sp. present. Collected by Mr. Huey Owen and Mr. Dwight Campau, June 12, 1945.

*Holotype* male and allotype female on deposit at Western Communicable Disease Center Laboratory. One paratype female at U. S. National Museum, one at British Museum (Natural History).

*Dactylopsylla digitenua* Prince and Stark, new species

This species (figs. 16-19) is close related to *D. pentachaeta* but is separated readily on the modified segments, particularly the finger of the clasper and the crochet. Only one male is known to us.

*Head*: Clypeal tubercle as in *D. pentachaeta*; a notch discernible. Antennae extend slightly beyond posterior border of head. Scape with 5 very small setae. Six extremely thin setae on pedicel reach only to the first segment of the clava which has 9 distinct segments. The small setae above antennae grade into three irregular rows instead of four. Chaetotaxy of head otherwise as in *D. pentachaeta*.

*Thorax* has fewer setae than *D. pentachaeta*. The anterior dorsal rows of setae on the meso- and metanotum number about 10, and the posterior dorsal rows number 8 in *D. digitenua*, while in *D. pentachaeta* the anterior dorsal rows number 15 and the posterior dorsal rows number 11 setae on each side. The hind tibia has 18 long, stout, dorsal bristles. Plantar bristles of segment V as in *D. pentachaeta*. Pregenital segments of abdomen as in *D. pentachaeta*.

*Modified segments. Male*: The VIII sternum has no posterior process, differing from *D. pentachaeta* which has a very inconspicuous process dorsal to the five bristles. There are 5 setae on the left side of the VIII sternum as in *D. pentachaeta*, and 4 setae on the right side as in *D. percernis*. The dorsal process of the clasper is similar to that of *D. pentachaeta*. The finger of the clasper is much more slender than in *D. pentachaeta*. The placement of the bristles on the finger is identical. The lower lobe of the IX sternum is a little more broadly curved, and the upper lobe is very thin and elongated while that of *D. pentachaeta* is quite broad and bears many thin setae. In this respect it resembles *D. percernis* and *D. neomexicana*. The crochet is quite different from that of *D. pentachaeta* and *D. percernis*. Instead of being more or less rounded and produced posteriorly, it has one dorsal and one posterior, prominent, narrow process, as in *D. neomexicana*.

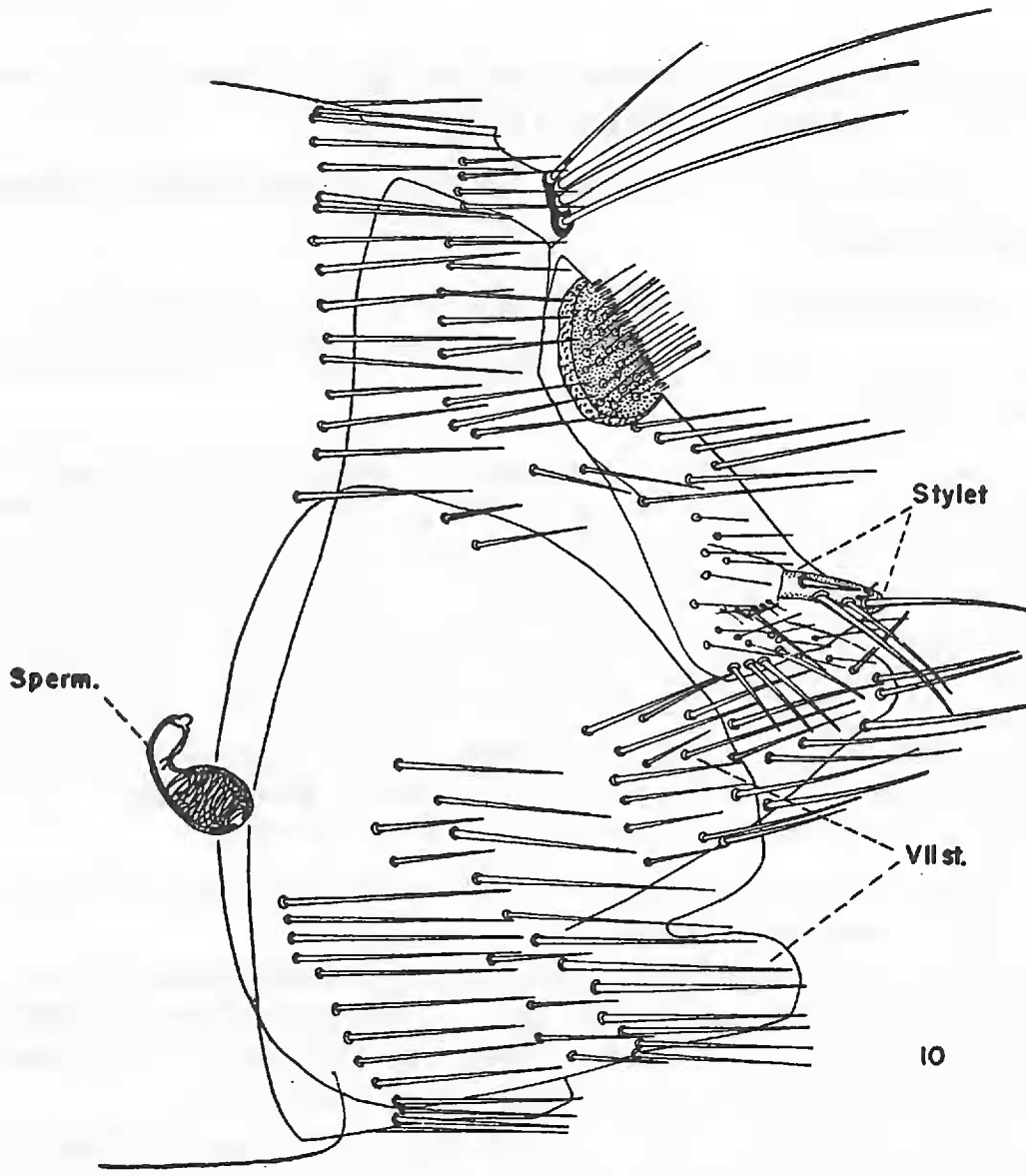
*Dactylopsylla digitenua* is closest to *D. pentachaeta*, but since it has some characteristics similar to *D. neomexicana* and *D. percernis*, these four fleas are probably subspecies of one another. However, until more specimens are obtained for comparison, the present nomenclature is maintained.

Measurements (length): Holotype male, 3.3 mm.

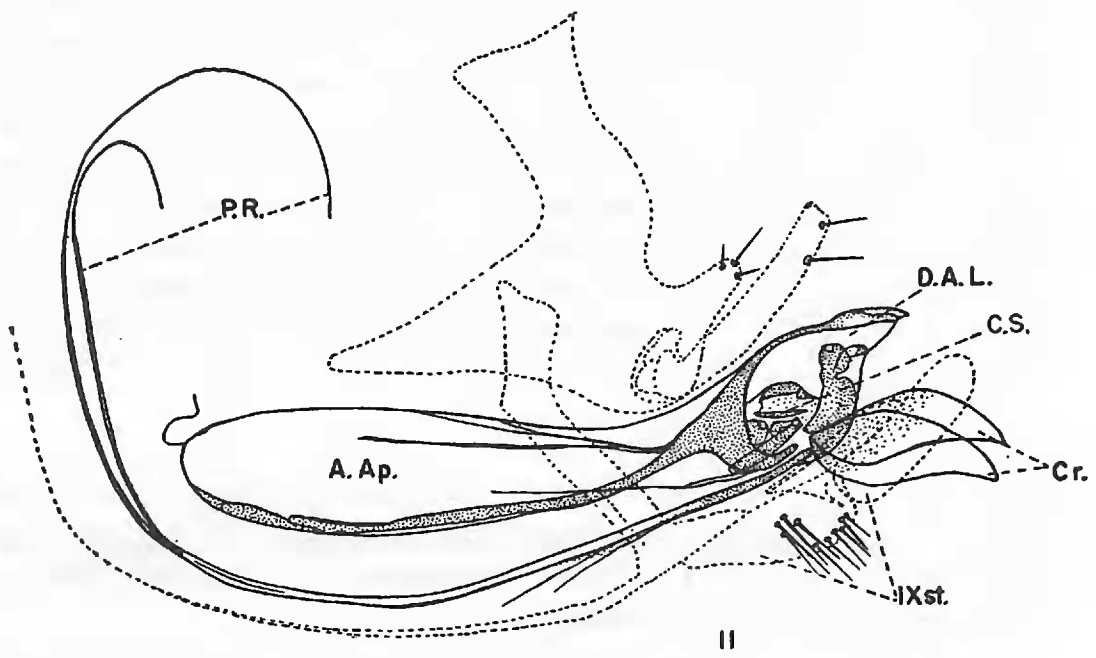
Type host: *Onychomys leucogaster* ssp. (true host probably *Geomys* sp.).

Type locality: 10 mi. W. MATADOR, 2,400 ft.; MOTLEY COUNTY, TEXAS. Ecological association: small streamside, mesquite, sage,

Fig. 10. *Dactylopsylla pentachaeta*, female. Fig. 11, *D. minidoka*, aedeagus.



D. PENTACHAETA SP. NOV.



D. MINIDOKA SP. NOV.



*Geomys breviceps* ssp. present. Collected by Mr. Frank Terry and Mr. Reino E. Raikko on May 3, 1950.

*Holotype* male on deposit at Western Communicable Disease Center Laboratory.

*Dactylopsylla minidoka* Prince and Stark, new species

This species (figs. 11-15) is closely related to *D. nuditenacula* Prince, 1945.

*Head*: Clypeal tubercle exceedingly small, more so than *D. nuditenacula*. Antennae of male extend little beyond posterior border of head. Scape large in male, without bristles in either sex. Pedicel of male with 6 setae reaching halfway along clava. Pedicel of female with 7 setae reaching beyond end of clava. Antennae of female do not reach posterior border of head. Single row in male, double row in female, of small setae above antenna. Two rows of thin medium-length setae on gena and one row of setae on posterior border of head. Only 4 bristles to each row on gena at most. Labial palps extend three-fourths the length of the fore coxa.

*Thorax*: Pronotal ctenidium with 23 teeth. Meso- and metathorax as in other members of genus.

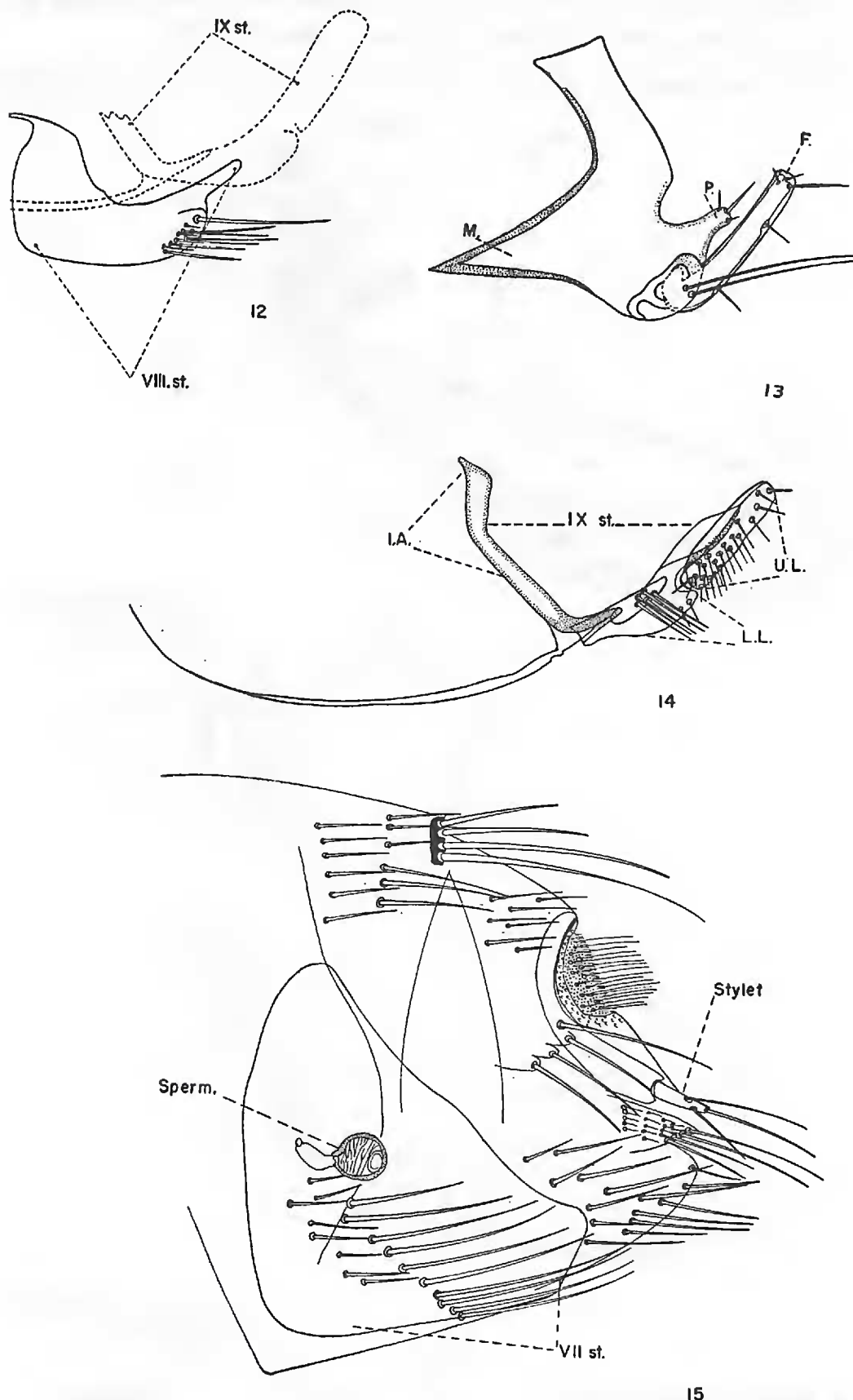
*Abdomen*: Over-all chaetotaxy similar to other members of genus. Antepygidial bristles 2 in male, with 1 small seta; 3 or 4 in female. Hind tibia has about 16 long, stout, dorsal bristles. All plantar bristles of segment V of tarsae are placed laterally.

*Modified segments*. Male: VIII tergum quite large, covering the greater part of the external genitalia. The VIII sternum is distinctive. The distal part is small and bears many bristles along the posterior ventral border. There is a long, narrow, distal process, having a rounded end and bearing no setae. The appearance of the VIII sternum is quite like that of *D. nuditenacula*. The IX tergum is small but distinctive. The manubrium is triangular in shape. The clasper is small and the dorsal process has a broad base, is not very long, and terminates with three small setae. The long, straight, narrow finger is quite similar to that of *D. nuditenacula* except that it bears 4 or 5 small setae laterally and along the posterior border. The internal arms of the IX sternum are narrow and smaller than in *D. nuditenacula*. The median lobe has an expanded posterior border (unlike *D. nuditenacula*) and bears several lateral setae. The upper lobe is large, bearing many thin setae and is similar to that of *D. nuditenacula*.

Female: The general outline of the posterior border of the VII sternum is similar to that of *D. nuditenacula* except that the lowest lobe is more pronounced, having an acute angle of 88 degrees, compared to 114 degrees for *D. nuditenacula*. The spermatheca and stylet are as in *D. nuditenacula*.

Measurements (lengths): Holotype male, 4.1 mm. Allotype fe-

male, 4.2 mm. Paratype males, 4.4 mm.; 4.1 mm.; 4.0 mm.; 3.9 mm.; average, 4.1 mm. Paratype females, 4.8 mm.; 4.8 mm.; 4.4 mm.; 4.3 mm.; 4.2 mm.; average, 4.5 mm.



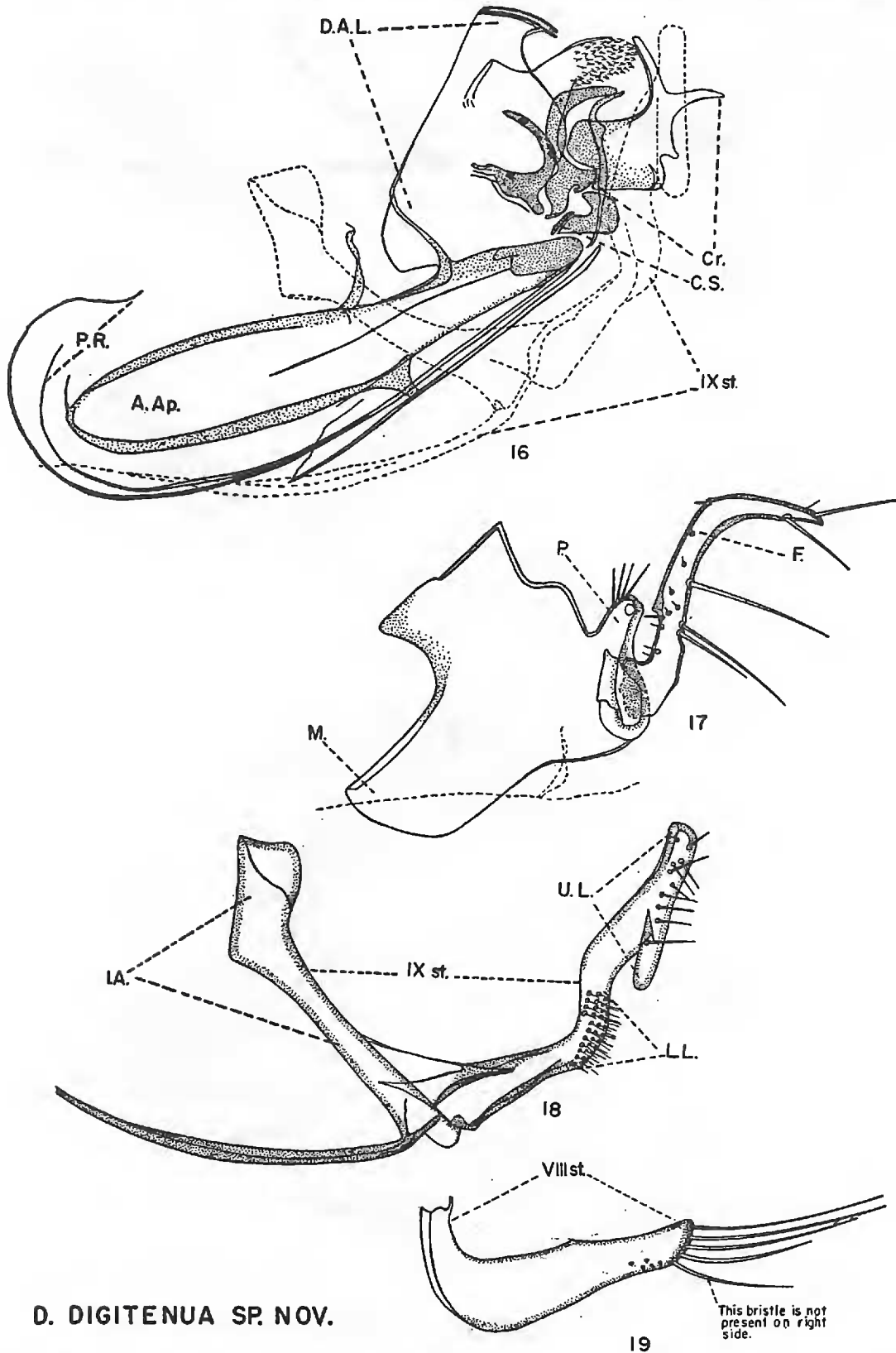
D. MINIDOKA SP. NOV.

Figs. 12-15, *Dactylopsylla minidoka*. 12, VIII sternum; 13, manubrium, clasper and finger; 14, IX sternum; 15, female.

Type host: *Thomomys talpoides gracilis* (Durrant, 1939).

Type locality: MINIDOKA NATIONAL FOREST, 7½ mi. S. E. Yost, on GEORGE CREEK, 6,500 ft., RAFT RIVER MTS., BOX ELDER Co., UTAH. Collected by Dr. Keith R. Kelson, May 11, 1947.

*Holotype* male and allotype female on deposit at U. S. National



**D. DIGITENUA SP. NOV.**

Figs. 16-19, *Dactylopsylla digitenua*. 16, aedeagus; 17, manubrium, clasper, finger; 18, IX sternum; 19, VIII sternum.

Museum. Paratype males and females at University of Utah Entomological Museum, Salt Lake City, Utah; at the Western Communicable Disease Center Laboratory; and at the British Museum (Natural History).

#### ABBREVIATIONS OF LETTERING ON FIGURES

A.	Aedeagus
A. Ap.	Aedeagal apodeme
Cr.	Crochet or aedeagal hook
C. S.	Crescent sclerite
D. A. L.	Dorsal apical lobe of aedeagus
F.	Finger of clasper lobe
I. A.	Internal arm of IX sternum
L. L.	Lower lobe of IX sternum
M.	Manubrium
P.	Dorsal process of clasper lobe
P. R.	Penis rods
Sperm.	Spermatheca or receptaculum seminis
St.	Sternum (of abdominal segment)
U. L.	Upper lobe of IX sternum

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#### SEAL CONTEST

The contest for an official seal for the Pacific Coast Entomological Society, announced in our January issue, was won by Mrs. L. R. Gillogly, Sacramento, California.